

THE PREHISTORY OF ATV

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It is very difficult to say categorically who the first ATV'er was: indeed if you take Marconi to be the first radio amateur, then perhaps Baird deserves the title of first amateur television experimenter. However, although the work of Baird (and his assistants) was experimental it was certainly not connected with the amateur radio hobby. During the era of mechanical TV and televisions several hams got involved and until just two years ago there was one fast-scan ATV'er in the USA who could claim continuous involvement in amateur television of one kind or another since those early days.

His name is Mel Dunbrack, WIBHD, and to use his own words, he had been "fooling around with television reception and transmission since 1923." At the last report he was still active on ATV, FAX and the HF bands, as well as being a member of AMSAT, having watched the Russian Sputnik fly over the USA. Henry Ruh told me that Mel was licensed as WIBHD-TV, the only ham to ever have officially such a suffix. Amazing stuff.

Once television experimentation started on a commercial basis in Britain, the USA and Continental Europe, these activities

began to attract public attention and a number of companies sold kits of parts for constructing electromechanical receivers for the experimental transmissions. Magazines published constructional articles and many enthusiasts became amateur television experimenters. The vast majority of them were not radio amateurs and because they were involved only in receiving, not transmitting, we do not count them as true amateur television operators, at least in the sense that this article is concerned with.

Here is a chronology of amateur television transmitting activity in the early days.

1926. The callsign 2TV, later G2TV, was issued to Television Ltd (later known as Baird Television) in Britain and its license was the first in the world issued specifically for the transmission of television pictures. This was a commercial venture and 2TV was not an amateur callsign. All the same, three radio amateurs (G2KZ, G2SH and G5PV) were involved with the design and construction of the 250W 200-metre transmitting equipment used at the station.

1927 Vision signals transmitted across the Atlantic from 2KZ in Britain. No pictures in New York, as TV receiver not available. See Daily News 22nd April, 1927.

1928, February. World's first transatlantic television transmission of live pictures from amateur radio station G2KZ at Warwick Road, Coulsdon (south of London) and received by Robert Hart, W2CVJ, and Ben Clapp, G2KZ, in New York. Detailed write-up with photographs in Royal Television Society Journal, January 1988.

1928, March. Live TV pictures received on SS Berengaria in mid-ocean. Video recordings made on a gramophone record by W2EB and W2BUO.

1928 or 1929. A Mr. Jack Porter built a closed-circuit 30-line television system and demonstrated it at his shop in Worcester, England. This is recalled by Grant Dixon, G8CGK, who knew Mr Porter.

1932 Australia. Amateur station VK2KI transmitted 30-line pictures on 136 metres. This was a Waverley Radio Club project.

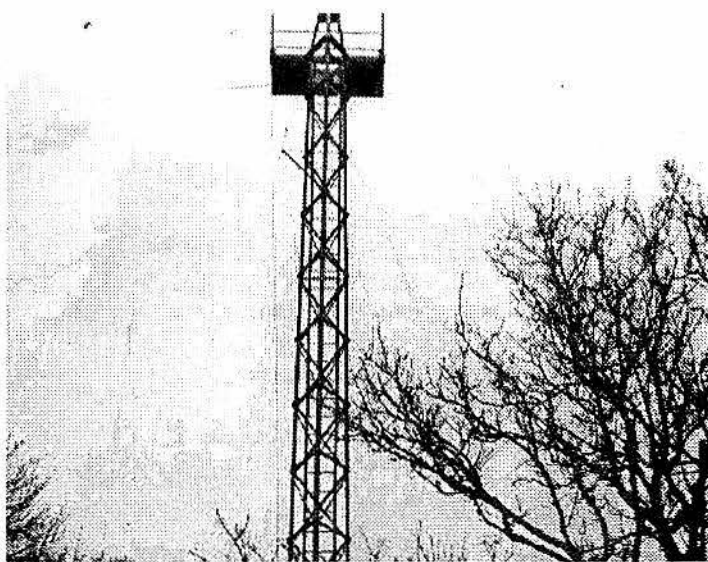


Figure 1. The first amateur television transmitting station in Britain - G2AO, Owen Relly, based near Eastbourne. Photo taken 1934 or 1935. Copyright Ray Herbert G2KU.

1934, January. G2AO, of Eastbourne was transmitting 30-line TV on 160 metres. See RSGB T & R Bulletin July, 1934, page 31. "I received amateur TV signals on 40 metres on 15th and 22nd July at 22.00 but could not get a picture."

1934, December. 30 and 60-line transmissions made by H. Bailey, G2UF, of Denton, Manchester, on 10 metres. See Practical Television, January 1935. The Royal Television Society has a photo.

The next mention of ATV in this country appears to be a note in Wireless World (3rd April, 1936) entitled 'Amateur Television in Yorkshire'. The text is one tantalizing sentence and reads "The Yorkshire Television Association is applying for a license to erect an ultra-short wave station at Gilderstone, near Leeds, for television experiments." It would appear that not a great deal came of these, although closer scrutiny of subsequent issues of Wireless World, the RSGB's T&R Bulletin and the local newspapers might bring something to light.

More 10 metre ATV activity followed. In Portsmouth, station G6PU radiated experimental transmissions using a 25-watt vision transmitter on 10 metres; it was located at the Portsmouth Municipal College. There is a photo of the station in the 28th July issue of Wireless World.

A short paragraph entitled 'Amateur Television' appears in the January 1939 edition of Television and Short Wave World, and reads as follows:

"Some American amateurs have recently installed a fairly high definition television transmitter which they are operating on a frequency of 57 megacycles. Members of their society have built their own receivers with miniature tubes, and considering the difficulties, results, it is stated, are quite satisfactory. British amateurs are limited as to the amount of work they can undertake, for television licenses are difficult to obtain with transmissions restricted to a frequency of approximately 29 megacycles, while only one picture per day can be transmitted" [author's emphasis; this may well be incorrect].

The story now moves to the USA and the New York World's Fair of 1939. Dave Ingram writes in Video Electronics Technology that ATV was demonstrated in the ham station there. "The managing director of W2USA, Art Lynch, W2DKJ, (now W4DKJ), after seeing a successful demonstration of amateur television equipment at a radio show in Chicago in June, was convinced that television communications should be added to the station at W2USA, "the most visited amateur radio station in the world". Since the World's Fair was scheduled to close at the end of October time was short, but Art lined up the necessary talent, and with some help from industry, the group built two complete television systems in an effort to establish the first two-way television contact.

"Their goal was accomplished on September 27, 1939, when amateurs at W2USA and W2DKJ/2 at the New York Daily

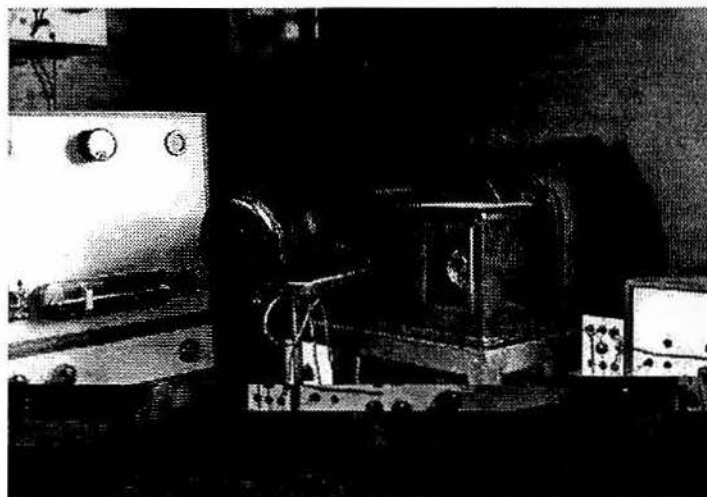


Figure 2. Amateur television transmitter by Owen Relly G2AO. This picture shows the 30-line scanning gear, with a photocell in a saucepan! The wavelength is 160 metres. Photo copyright G2KU.

News building in Manhattan began exchanging fair quality television pictures on the amateur 112MHz band. Accompanying sound was transmitted on 56MHz. Distance between the two stations was about eight miles.

"The television equipment at each end of the circuit consisted of a camera-modulator unit, a receiver and a transmitter which were duplicates of equipment described earlier in QST. The system used 30Hz vertical scanning, 3600Hz horizontal scanning and a 120-line raster. Considering that the pictures were viewed on a CRT with a P1 phosphor, the results were quite gratifying. Each station boasted the very latest in electronic equipment, including electro-magnetically deflected cathode ray tubes, free-running sweep tubes synchronized by external pulses, and iconoscope camera tubes. The equipment was donated by RCA, National, Hallicrafters, Hammarlund, Thordarson and Kenyon. The station at W2USA used a single 1000 watt lamp for subject illumination, while W2DKJ/2 had a battery of smaller lights with reflectors.

"A number of amateurs in the vicinity of New York were working on their own television receivers, and on October 15 W2AOE put on a demonstration for members of the Northern Nassau Radio Association by receiving TV signals from the 20 watt station at W2DKJ/2, seventeen miles away. The range was increased to 29 miles on October 19 when good quality TV signals were received at W3FRE in Denville, New Jersey."

Another description of pre-war amateur operation in the USA is to be found in the December 1942 issue of Electronics magazine, where Robert Mautner and Frank Somers (calls not given) describe their extremely professional camera, monitor, sync pulse generator and transmitter. This equipment, they say, was constructed just before the war and used successfully in the 114MHz band for several months. The comprehensive list of references also mentions a couple of articles on ATV in the May

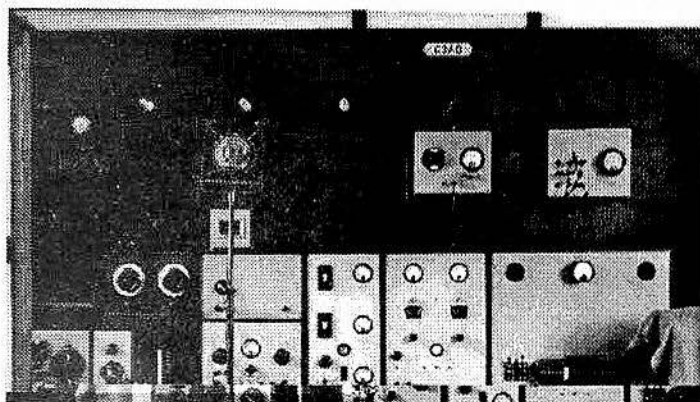


Figure 3. The radio room and mast of Owen Relly G2AO in 1934 or 1935. Photo copyright G2KU.

and July 1940 issues of QST. All these transmissions were on the then-current American standard of 441 lines, with 60Hz vertical frequency.

The war put a stop to further ATV development and the next mention of this subject occurs in 1948, in the British magazine *Mechanics*. The 15th October issue devoted its centre spread to an Australian ham, VK3LN, who had built his own television camera and receiver. The system's line standard is not mentioned but the illustrated article stated that he proposed to transmit speech on 144 megacycles and that clear vision reception was expected within line of sight.

We move on to the year 1950, when W2LNP in the USA published a three-part article in *Radio and Television News* describing his home TV station. This conformed to the very same standards used by American broadcasters, namely 525 lines, 60 fields, audio subcarrier and transmitted on the 420-450MHz band. The article is extremely progressive for its time and set the scene for all subsequent development, which can be traced in QST, 73 and A5 magazines.

It is now 1951 and we take a visit, remarkably, to the Soviet Union. Amateur construction of television station and receiving equipment is highly developed in the Soviet Union. According to the OIR Bulletin of 15 June 1951, the initiative in the construction of a television centre was taken by radio amateurs of Kharkov, one of the greatest industrial and cultural centres of the Ukrainian SSR. While constructing this television centre, the amateurs had to overcome many technical difficulties such as the elaboration and perfection of different parts of this complicated system. The initiative of the Kharkov radio amateurs was supported by the authorities, and workers in many Kharkov enterprises devoted their leisure hours to making free of charge, transformers, transmitters and rectifiers, aerials and other accessories.

The television centre constructed by the Kharkov radio amateurs is operating successfully. The "stable zone" of this centre is 20 to 25 km. Its sound and picture transmissions can be received not only on the KVN and Leningrad T1 sets manufactured in

Soviet radio workshops, but also on receivers built by amateurs. Radio amateurs, in many other towns of the country, inspired by the successful experiments of the Kharkov centre, are also beginning to build television centres.

Continued operation of this centre was reported by OIR in February 1952, in an article which said that amateurs had been constructing "television distribution centres, relay stations, simple and inexpensive amateur television sets, devices for relief and colour television, television apparatus requiring a small number of valves intended for mass production and many other apparatuses and devices".

Various publications aid the amateur in his work, including the following books: *100 Answers to Questions by Amateurs on Television*; *Television Receivers and How to Control Them*; *The Technique of Demonstrating Television*; *Amateur Television Receiver LTK9*, by A. Komainko; *Amateur Television Receivers*, by J. Bardah and L. Troitzky. A note about the last book states: "The authors give a survey of peculiarities in the construction of amateur television receiving sets; they describe receivers equipped with cathode ray tubes of 5, 7 and 12 inches. The book is written for readers with technical knowledge of television."

(This fascinating excerpt is from a UNESCO (United Nations) handbook entitled *Television, A World Survey*. It was published in 1953.)



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